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# State of Utah

## DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER

*Executive Director*

### Division of Oil, Gas and Mining

JOHN R. BAZA

*Division Director*

6271

November 21, 2014

William C. Gibbs  
Green River Resources Inc.  
4760 South Highland Drive, #341  
Salt Lake City, Utah 84117

Subject: Second Review of Notice of Intention to Commence Large Mining Operations, Green River Resources Inc. Bruin Point Mine, Carbon County, Utah, M0070040, Carbon County, Utah

Dear Mr. Gibbs:

The Division of Oil, Gas and Mining (Division) has completed a review of the referenced Notice of Intention to Commence Large Mining Operations (NOI) which was received October 6, 2014. The attached comments will need to be addressed before tentative approval may be granted.

The Division has the following general comments:

1. The submittal should be formatted to easily incorporate additional revisions and amendments.
2. The Division may have additional comments based on the responses to this review.

The Division will suspend further review until receiving your response to this letter. Please contact Wayne Western at 801-538-5263 if you have questions about the review or if you would like to schedule a meeting to discuss it. Thank you for your cooperation.

Sincerely,

Paul B. Baker  
Minerals Program Manager

PBB: whw: eb

Attachment: Review

cc: Dan Hall, DWQ

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**SECOND REVIEW OF NOTICE OF INTENTION  
TO COMMENCE LARGE MINING OPERATIONS  
Green River Resources Inc.  
Bruin Point Mine  
M/007/0040  
November 18, 2014**

**General Comments:**

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
1	Appendix G	<p><i>From the April 16, 2014, review: The raw laboratory data found in Appendix G was extremely confusing to interpret. The analytical results presented in Tables 1 and 2 were reportedly for three samples of processed ore and one sample of raw tar sands. The analytical reports provided by America West Laboratories only reported results for three samples: 1A, B, C; 2 A, B, C; 3A, B, C. All were identified as "processed sands" on the Chain of Custody document. There was no analysis report for the raw tar sands sample. Furthermore, on Tables 1 and 2, samples were titled 001A, 003A, 005A, 007A, which were not the same identifier numbers on the lab reports. On top of that, none of the detected concentrations found in the lab reports matched the data that was presented in Tables 1 and 2.</i></p> <p><i>Please clarify these laboratory analytical data results.</i></p> <p>The tabulated data in Tables 1 and 2 provided in the Appendix G is still not coinciding with the lab analytical reports. The data results for each analyte in the lab reports do not match the data in the tables.</p> <p>Lab data for the raw tar sands sample was still not provided in Appendix G. Sample Lab ID 2A, B+C is missing from the tables.</p>	aa	
2	Figure 1	<p><i>From the April 16, 2014, review: The use of the terms "permit area" and "project area" is confusing and difficult to apply to the regulations. As shown on several of the figures, the permit area is sometimes outside the project area and the project area is sometimes outside of the permit area.</i></p> <p>The Division recognizes its lack of clarity with the comment in the previous review. To reduce confusion, please use terms as used and defined in the R647 rules to identify surface and underground areas to be affected by the operation.</p> <p>Disturbed Area means surface land disturbed by mining operations.</p> <p>Land Affected means the surface and subsurface of an area within the state where mining operations are being or will be conducted ....</p> <p>The term permit boundary and survey boundary are not defined in the regulations and do not define areas where conduct mining and reclamation operations may be conducted.</p> <p>Specifically the Division wants the areas where surface disturbance will occur (bonded area) shown as disturbed areas. The areas where mining will occur, both surface</p>	whw	



		disturbance and underground mining, should be categorized as land affected.		
3	Figure 12 109.1, pg. 44	Please overlay the disturbed areas with the watershed boundary line.  The statement in paragraph 1 that the disturbance area does not extend into the headwaters of the Range Creek Canyon watershed is not accurate based on Figure 12. The majority of the disturbance area is mapped within the Range Creek Canon watershed; only the southwest corner of the disturbance area is located in the Grassy Trail Creek watershed.	aa	

#### **R647-4-105 - Maps, Drawings & Photographs**

##### **105.1 - Topographic base map, boundaries, pre-act disturbance**

Com ment #	Sheet/Page/ Map/Table #	Comments	Initial s	Revie w Action
4	Figure 2	Please show the access route to the site from Nine Mile Canyon.	whw	
5	Map 1	In the legend please show the line type that represents affected area. Also note that the affected area shown on Map 1 is different than the affected area shown on Figure 5.	whw	
6	Map 1	The Division recommends that the pad be restored to a more natural topography than leaving the area flat.	whw	
7	Map 2	The contours in the tailings stockpile do not correspond with the contours outside the tailings stock pile. For example contours in the year1 area have a maximum height of 10,150 feet, but that contour blends into contour 9860 fee. The contour marking the bottom of year 1 is 10,050 feet in the tailing stock pile area but blends into the contour for 9700 feet.	whw	
8	Map 2 & Map 3	The contours on Map 2 and Map 3 are significantly different for the tailings stockpile area	whw	
9	Map 4	In the legend please show what the different lines and symbols mean.	whw	
10	Map 4 and Figure 5	The structures listed on Map 4 are different than those on Figure 5. For example in Map 4 there is a fan, parking lot, crushing facilities, fuel tanks, water tanks, parts trailer and portable office. Only a fan and substation are shown on Figure 5. Please include all structures in the bond and equipment list.	whw	
11	Map 5	Please label contours that are outside of the disturbed area.	whw	
12	Map 5	Please define the line types in the legend	whw	
13	Map 5	There are three green contour lines that all merge into the same contour at the bottom of the map. Please make the appropriate correction.	whw	
14	Map 5	Several of the blue contours stop at the disturbed area boundary. The way they stop suggests a vertical cliff-like structure would be left, but Map 4 shows slopes of 2H:1V. Please have the contours outside the disturbed area connect with the contours within the disturbed area.	whw	
15	P68	Some of the slopes would be left at 2H:1V or steeper. Please include a map and cross sections showing slopes that are steeper than 2H: 1V.	whw	

##### **105.2 - Surface facilities map**

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
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16	Figure 5 and Appendix H and page 10, 11 and 58	<p><i>From the April 16, 2014, review: Please make sure that all items listed in the bond are shown by the same name on the surface facilities map and in the text. Some items missing from the bond include the material conveyor and the communications tower. Also the warehouse is listed on page 10 as a warehouse and maintenance shop. Please include the change house, substation, and fan house.</i></p> <p>This comment was not adequately addressed. The following items are found on pages 12 and 13 and Figure 5: Warehouse and Maintenance Shed, Office Building, Electrical Building, and Process Equipment.</p> <p>In the text, tanks are referred to as a tank farm, but on Figure 5 they are listed as the solvent storage tank, water storage tank and bitumen storage tank. Please be consistent between the text and figures.</p> <p>Items listed on Figure 5 but not in the text are the process building (not to be confused with process equipment), the material conveyor, the substation, and the fan house.</p> <p>On page 6 the plan says the process will use heat. Please state what type of fuels will be stored on site. Also include fuel for vehicles and building heating.</p> <p>Please show the septic system, parking lot, power lines, the change house, and snow storage areas.</p>	whw	
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### 105.3 - Drawings or Cross Sections (slopes, roads, pads, etc.)

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
17	Omission	<p><i>From April 8, 2014, review: Please provide a cross section showing the extent of the ore zone to be mined. Please depict the surface elevation, the ore zone elevations, Range Creek and any other important features necessary in this cross section.</i></p> <p>Map 4 in Appendix G does not show these features. This is a map of the portal design.</p>	aa	
18	Figure 13	Colors on the geologic legend do not match colors on the map. Consider turning off the vegetation layer; most obvious is the Tgu.	lah	
19	Figure 13a	Please color code cross section to match Figure 13 and delete the dash lines at 8500 and 9500 feet.	lah	
20	Figure 16	Add H and V to both 2:1 and 2:1.5. The Division suggests using the notation 1.33H:1V instead of 2H:1.5V.	lah	
21	Figure 16 & Map 4 App G	The figures do not match.	lah	
22	Map3 App G	Add the maximum slope angles, i.e. "max 2H:1V".	lah	

### R647-4-106 - Operation Plan

#### General Operation Comments

Comment #	Sheet/Page/Map/Table	Comments	Initials	Review Action
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23	Appendix D and Access Road	The Division was unable to locate the road maintenance agreement with Carbon County in Appendix D. Please provide a copy of the agreement. The road will need to be permitted and bonded unless it is a public road.	whw	

**106.2 - Type of operations conducted, mining method, processing etc.**

Com ment #	Sheet/Page/ Map/Table #	Comments	Initial s	Revie w Action
24	Pg. 8	The plan says an adequate buffer will be maintained as underground mining approaches Range Creek. Please elaborate on what factors will determine what is considered an adequate buffer.	aa	
25	Pg. 9	<i>From April 8, 2014, review: The underground mining plan states that the sorting waste and tailings will be disposed of in a permanent surface stockpile during the first six years of mine life. However, on Figure 5 the permanent tailings storage area shows only four years of storage (years 0-3). Please correct this discrepancy.</i>  The original Figure 5 submitted was intended to show the topsoil removal plan which was to take place over the first 4 years. It was discovered on this second review that the map now omits the topsoil removal plan for years 0-4. The map legend shows the top soil contours in black but they also should be labeled on the map for each year of removal.	aa	
26	Pg. 6 & 15	Type of Operations to be Conducted states, "... and uses a fraction of the heat typically required for ...". This statement implies that heat will be used in the process. Please identify the source of the heat and include it on Page 15.	mpb	
27	Pgs. 14-15	Inconsistency: The third paragraph on page 14 says, "In this way all solvent used in the operation will be recovered from both the sand and the bitumen and recycled in the process." Meanwhile, the second paragraph on page 15 says "It is anticipated that some of the solvent will remain with the bitumen requiring some solvent makeup; therefore an ongoing supply of solvent will be required." Research into the process developed by Universal Oil Recovery LLC indicates that the process uses equipment supplied by SRS Engineering Corporation. Even though it says it uses a closed loop system, some solvent will be lost, which amounts to a "release" to the environment. A forthright accounting of the solvent use, amount lost (released), and its chemical make-up is required.	mpb	
28	Pgs. 10 & 16, Appx. G, Figures 5, 7, & 8, and Map 2 (Also Figs 2 & 3 of SWPPP, possibly others throughout the NOI)	Inconsistency: Page 10, paragraph 5 (Type of Operations) and the table in Appendix G indicate that after year 6, 29 million cubic yards of sand tailings will be returned to worked-out parts of the underground mine. Page 16, paragraph 2 seems to reverse this, and says that only 14 million cubic yards of sand will be placed underground. Figures 5 and 7 are labeled with 6 years of sand disposal, while Figure 8 uses the same contours and indicates 16 years of disposal. Map 2 also indicates that sand tailings will be dumped on the sand stockpile area through year 16. The Division requests the operator commit to the underground disposal of the maximum amount of sand tailings as stated on Page 10, Appendix G, and Figures 5 and 7, and remove or correct any statements, figures and maps to the contrary. The Division encourages underground disposal to the maximum extent possible to help minimize the impacts of leaving and reclaiming the sand disposal pile.	mpb	



### 106.3 - Estimated acreages disturbed, reclaimed, annually

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
29	Table 106.3.1	<p>Table 106.3.1 shows the total surface disturbed area under the proposed permit. Please include the proposed underground area acreage.</p> <p>The acreages listed in Table 106.3.1 is 560 acres, but the total only comes to 160 acres.</p> <p>Please have one table for Disturbed Area Acreages and another table for Land Affected Acreages.</p>	whw	

### 106.4 - Nature of materials mined, waste and estimated tonnages

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
30		Not Addressed, Please provide a table that shows the estimated annual production of product ore and waste product. A table was not apparent in Appendix G	whw	

### 106.8 - Depth to groundwater, extent of overburden, geology

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
31	Pg. 35	<p><i>From April 8, 2014, review: The description of drilling activities presented one monitoring well drilled to 1,035 feet yielding two gallons of water. None of the figures showed where this drill hole was located. Please add this drilling location to one of the figures.</i></p> <p>The exploration drill hole was added to Figure 4. Figure 5 had the drill hole on the map legend, but it was not added to the map.</p>	aa	
32	Pg. 36	<p><i>From April 8, 2014, review: More information is needed on the geology underlying the Green River Formation in the project area. Specifically, information is needed as to what formation the springs and seeps in the underlying rock formations identified in the spring and seep survey are originating from and what is the relative depth between the ore formation and the spring and seep-bearing formations.</i></p> <p>The second part of this comment asking from which rock formations the springs originate was not addressed in the geology section of the Notice.</p>	aa	
33	Page 35	<p><i>From April 8, 2014, review: The surface map refers to Colton and Flagstaff formations, and the text refers to the Wasatch formation. Please provide an explanation in the text.</i></p> <p>The inconsistencies have been corrected, but the description of the geologic units has also been eliminated. Please re-insert the descriptions of all the geologic units shown on Figure 13 and 13A.</p>	lah	

### 106.9 - Location & size of ore, waste, tailings, ponds

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
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nt #	Map/Table #		s	w Action
34	pg. 36	The plan indicates there will be two 30,000-ton stockpiles consisting of ore and temporary tailings adjacent to the processing plant as shown on Figure 5. A perimeter berm is planned as a hydrologic control for the processing area, which will include these stockpiles. The Notice needs to include geotechnical information providing design criteria that the berm will sufficiently contain these stockpiles in the event of an environmental hazard event that could release the tailings and ore stockpile materials to the Range Creek Canyon drainage.	aa	

#### **R647-4-109 - Impact Assessment**

##### **109.1 - Impacts to surface & groundwater systems**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
35	Pg. 39	<p><i>From the April 8, 2014, review: The third paragraph on this page states that annual precipitation is estimated at 12.5 inches with another 20 inches of snow. Snow is precipitation. An "average annual precipitation" value is a combination of rain and snow. The snow water equivalent is commonly about one inch of water for every ten inches of snow. So if read as-is, this paragraph basically says the average annual precipitation is about 14.5 inches (12.5 inches of rain and 2 inches of snow-water).</i></p> <p><i>This estimate contradicts the precipitation values provided in Table 106.5.1 on page 17. The latest PRISM data also estimates annual precipitation at 23-25 inches. Please correct or explain the discrepancy and adjust accordingly any conclusions that may have been based on the original estimate.</i></p> <p>The annual precipitation estimate in the last paragraph on page 44 appears to have been revised downward to 10.12". This is in direct contrast to what other data indicates, including that listed in the soils report in Appendix B, where soil type mean annual precipitation ranges from 16"-30", with a weighted average of approximately 22"-24".</p>	mpb	
36	Pg. 44	The top paragraph asserts that "[t]he headwaters of Range Creek Canyon, which flows near the eastern boundary of the study area and eventually flows into the Green River (Uintah Watershed), is not within the proposed area of disturbance." However, the USEPA states: "Many headwater streams are prone to natural drying because they lack year-round connections to groundwater and don't have permanent flow" ( <a href="http://www.epa.gov/eerd/research/headwater.html">http://www.epa.gov/eerd/research/headwater.html</a> ). On-site observations revealed that here is a defined channel running down the valley to be used for the tailings disposal area. During the course of the last review meeting with the operator, a verbal request was made for delineation of this drainage in accordance with US Army Corps of Engineers (ACOE) guidelines. This drainage may be considered a jurisdictional headwater of Range Creek. The Division requests written concurrence from the ACOE that this is not the case.	mpb	
37	Pg. 35	<i>From the April 8, 2014, review: The only groundwater studies performed for this project appear to be the installation of a single well and a spring and seep survey. The drillers log for this well hole did not identify the geology that was encountered.</i>	aa	



		<p><i>The Division of Water Quality Groundwater Discharge Permit Application was not included with the permit, so it was not clear if any additional studies have been completed. The Division cannot make an assessment of impacts to groundwater based on this information. A more comprehensive groundwater study to determine the impacts this operation, such as the Groundwater Discharge Permit Application, is needed.</i></p> <p>The seep and spring survey prepared by URS in September 2014 focused on the groundwater supply sourcing North Spring which has recorded discharge levels ranging from 1.8 gpm – 40 gpm. Tributary Spring farther downstream has been reported at 4 gpm. The report discussed that the groundwater discharging from these springs is responsible for providing surface flow in the Range Creek channel.</p> <p>The report discusses that snowmelt staged for prolonged periods on the northeast aspect slopes of the dry material impoundment area combined with the highly fractured bedrock of the Green River formation contribute the source water needed to recharge the groundwater system that supplies North Spring and to a lesser extent, Tributary Spring. The location of the dry material impoundment is directly adjacent north of North Spring.</p> <p>The Division is concerned that the construction of the dry material impoundment area and an associated underlying clay liner may impede or disrupt the recharge capability for North Spring. Although the spring is located at an elevation above the T38 ore horizon and the spring is located outside of the active mining area, the location of the dry material impoundment area still places this spring at risk and thereby also puts the flow regime in Range Creek at risk as well if the spring source is disrupted.</p> <p>The report also pointed out two borings drilled by Amoco A-14 and A-17 that reported artesian groundwater conditions below the surface at approximately 70 feet bgs. The flow rates were reported at 300 gpm and 50 gpm respectively. These borings are located in the proposed dry materials impoundment dump, and it is unclear if these artesian conditions could impact the clay liner and possibly weaken it.</p> <p>The operator has committed to actions to mitigate impacts to surface and groundwater, stating that downgradient springs and seeps will be sampled. The plan references the Groundwater Discharge Permit, which was not included in the plan because it is still in the review and approval process with the Utah Division of Water Quality. The groundwater discharge permit application was not provided to the Division. The Division is unclear as to what types of sampling and mitigation measures are being proposed for the springs.</p>		
38	Pg. 39	<p>Page 39 says the storm water pollution prevention plan (SWPPP) is in Appendix E, but this and other permits referenced on the cover page of Appendix E were not provided with the Notice. A SWPPP, or information that would be included in the SWPPP, is needed to evaluate how storm water will be routed around the disturbance area. It is noted that a surface water control plan was submitted as Figure 7, but it is not clear as to what design criteria were used for the diversion ditches, collector sumps, catchments, berms, etc., in order to evaluate if these hydrologic features are</p>	aa	



		capable of handling regional precipitation events. A draft copy of the SWPPP is acceptable.		
39	Pg. 39	A map was provided; however, the disturbance appears to be located predominantly in the Range Creek watershed, not the Grassy Trail watershed. See related comment in the general comments regarding Figure 12.	aa	
40	Omission	Provide a detail of the runoff protection systems at the toe of the sand pile to show the sediment trap layouts, relative elevations, flow and outlet routing, and design capacities. Based on typical local conditions, adequate control of erosion and sediment should be achieved by containment capacities designed for a 100-year, 6-hour storm. Current illustrations and descriptions do not provide adequate information to evaluate the probability that protective measures will function as needed.	mpb	
41	Stability and Hydrology report Fig 3	Figure 3 of the Stability and Hydrology report shows a retention basin (#8) at the eastern-most point of the tailings storage pile, but Figure 7 of the Notice shows a series of three dots labeled "Sediment traps" at the lowest topographic point of the tailings storage pile. Please correct this apparent inconsistency. The sediment traps on Figure 7 are likely in the more appropriate location to protect the Range Creek drainage. (See comment 40 above.)	mpb	

#### 109.2 - Impacts to threatened & endangered wildlife/habitat

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
42	Omission	Provide details of the system(s) to be used at the toe of the slope of the processed sand pile that are intended to protect the Range Creek drainage system in perpetuity and prevent the migration of sediment and/or contaminants into the drainage and likely impact downstream wildlife habitat. Current illustrations and descriptions do not provide adequate information to evaluate the probability that protective measures will function as needed.	mpb	

#### 109.4 - Slope stability, erosion control, air quality, safety

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
43	Pg. 53	The topsoil stockpiles are estimated to cumulatively contain approximately 220,000 cubic yards of material. The proposed berms for the topsoil stockpiles are designed to be two feet high and two feet wide with a 1.5H: 1V slope. Please provide the engineering design calculations showing that these berms will contain this volume of topsoil in the event of a slope failure that could pose an environmental hazard to the Grassy Trail Creek watershed.	aa	
44	Omission	Please discuss in the text the issues regarding subsidence and the backfilling of tailings.	lah	
45	App G page 12	Page 12 notes a clay liner below the tailings stockpile, but a clay liner is not shown on any of the stability analysis. Please include.	lah	
46	App G page 15	Paragraphs 3 & 4: Please include a plan view map that shows sections A-A' and B-B'.	lah	
47	App G page 15	The last paragraph notes Appendix D. Is this a typo? Should it be Appendix G? This problem was noted elsewhere in the text and on Figure D1 and possibly other figures.	lah	
48	App G	Paragraph 4 notes the steepest slope to be 1.75H: 1V, yet Table 5 notes maximum	lah	



		slope grade of 2.25H:1V. The stability analyses should be modeled on the steepest slope angles.		
49	Table 5	The header notes a grade, but the units below are not in percent.	lah	

#### **R647-4-110 - Reclamation Plan**

##### **110.2 - Roads, highwalls, slopes, drainages, pits, etc., reclaimed**

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
50		When comparing Google Earth with the reclamation maps there are several roads that show up on Google Earth in the "permit area" that do not appear on the map. Please include a Google Earth or similar image showing existing roads, which ones will be used, and which are scheduled for reclamation or to remain as part of the post mining land use.	whw	

##### **110.4 - Description or treatment/disposition of deleterious or acid forming material**

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
51	Pg. 59 & Appendix F	<p><i>From the April 8, 2014, review: Due to its "proprietary" designation, the Material Safety Data Sheet (MSDS) provided for the Hydrocarbon Extraction Solvent is lacking information necessary to evaluate its potential deleterious impacts. The MSDS also contains several statements and requirements that are contradictory and raise alarms as to its true worker and environmental safety. A more thorough understanding of the constituents that make-up this material is required to determine the potential effects it may have on human health and safety, and the environment. When provided, this information can be marked "Confidential."</i></p> <p>This issue is unresolved.</p> <p>To date, the reason given for a "proprietary" designation of the solvent mixture has been "loss of competitive advantage." This is the definition of a "trade secret." Forty CFR part 350 requires a completed EPA Form 9510-1 (7/1988) to be submitted to, and approved by, the EPA for the chemical mixture or process use of a chemical to be legally considered a trade secret.</p> <p>With that said, designating anything as "proprietary" or a trade secret does not automatically justify withholding information requested by any federal, state, or local regulatory agency that is essential in reviewing potential impacts to public health and safety and the environment, and evaluating measures to be employed to prevent or mitigate such impacts.</p>	mpb	
52	Omission	The sampling and analysis plan needs to be provided to the Division for review.	mpb	
53	Appendix G	<i>From the April 8, 2014, review: Analytical data is provided for the processed sands that indicate there will be no residual bitumen or processing chemical in the processed sands disposed of in the tailings pile. These results are from controlled laboratory conditions. An ongoing QA/QC sampling and analysis plan needs to be implemented to ensure that the sands placed in the tailings pile are in fact clean and free of residual bitumen, oils and processing reagents.</i>	mpb	



		The Division makes the following clarification of this requirement. The required QA/QC sampling and analysis plan is to monitor the tailings sands as they are deposited, not for groundwater discharge. This is intended to prevent the introduction of contaminants into the environment rather than monitor their progression through soil and groundwater after deposition. Please provide a brief narrative of how the sands will be monitored and sampled during operations prior to disposal, including sampling frequency and analytes.		
54	Appendix G	Without knowing the individual components of the solvent mixture, the Division does not know whether they are included in this list of organic chemicals in the analytical results, which therefore makes the analytical data of limited value.	mpb	
55		The sampling and analysis plan needs to be provided to the Division for review	mpb	

#### 110.5 - Revegetation planting program

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
56		Please state the depth of topsoil and growth medium that will be placed in each area during final reclamation. The values in the plan are inconsistent. The amount of soil affects the reclamation cost estimate, so the cost estimate will need to be adjusted depending on what value is used.	mpb	

#### R647-4-113 – Surety

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
57		Please include a table showing where materials will be stored and where they will be placed during reclamation. This is important to verify that all operations are accounted for in the reclamation cost estimate.	whw	
58		Map 3 shows the tailings stockpile being covered with four feet of compacted clay material with 18 inches of topsoil/plant growth medium placed over the clay. The cost estimate, though, does not mention placing four feet of clay cover on the tailings stockpile. Please include the cost of placing the clay in the reclamation cost estimate.	whw	
59	P 68	Sorted waste and sand tailings will be loaded into trucks, hauled back to the mine, and used as backfill for mined out areas. Please include in the reclamation cost estimate a cost to haul material underground.	whw	
60	P 73 and Reclamation Cost Estimate	Once final grading is complete, as described above, topsoil and topsoil substitute material will be spread on the mine plant area using self-loading scrapers to place soil and a grader to spread the soil. However, in the reclamation cost estimate there is no mention of scrapers. Please clarify.	whw	